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Related Pending Application	
Related Case Serial No:	<u>09/314,939</u>
Related Case Filing Date:	<u>05-20-99</u>

CLAIMS:

1. A supervising system, comprising:
  - a central control apparatus;
  - a public communication network connected to said central control apparatus;
  - a communication adaptor connected to said public communication network;
  - a plurality of image forming apparatus connected to said communication adaptor via one of a wired interface and a wireless interface; and
  - a mobile computer selectively connected to said one of the wired interface and the wireless interface, and configured to execute communications of information between the central control apparatus and itself via the public communication network.
2. The supervising system as claimed in claim 1, wherein said central control apparatus is located at a service center.
3. The supervising system as claimed in claim 1, further comprising a dispatch system configured to dispatch a service person to a user of a respective one of the plurality of image forming apparatus, and which is linked with the central control apparatus.
4. The supervising system as claimed in claim 1, wherein said mobile computer includes:
  - an operation status information inputting device configured to input operation status information related to an operation status of the service person; and
  - an operation status information informing device configured to inform the operation status information to the central control apparatus.
5. The supervising system as claimed in claim 4, wherein said operation status information includes a security code configured to identify the mobile computer.
6. The supervising system as claimed in claim 1, wherein said mobile computer includes:

an operation history information inputting device configured to input operation history request information; and

an operation history information informing device configured to inform the operation history request information to the central control apparatus.

5           7. The supervising system as claimed in claim 6, wherein said central control apparatus includes:

an operation history information storing device configured to store operation history information related to an operation executed by the service person for each of said plurality of image forming apparatus when receiving the operation history information from said each of  
10 the plurality of image forming apparatus;

a reading device configured to read prescribed operation history information from said operation history information storing device when receiving a request for the operation history information from said mobile computer; and

an operation history information transmitting device configured to transmit the  
15 operation history request information to said mobile computer.

8. The supervising system as claimed in claim 1, wherein said mobile computer includes:

a service manual information request inputting device configured to input service manual request information; and

20 a service manual information informing device configured to inform the service manual request information to the central control apparatus.

9. The supervising system as claimed in claim 8, wherein said central control apparatus includes:

a service manual information storing device configured to store service manual  
25 information for each of the plurality of image forming apparatus;

a reading device configured to read prescribed service manual information from said service manual information storing device when receiving a request for the prescribed service manual information from said mobile computer; and

a service manual information transmitting device configured to transmit the prescribed service manual information to said mobile computer.

10. The supervising system as claimed in claim 9, wherein said mobile computer includes:

5        an image forming apparatus designating device configured to designate a prescribed image forming apparatus, which is to receive and print said service manual information from said central control apparatus, and said central control apparatus transmits said service manual information to said prescribed image forming apparatus.

10        11. The supervising system as claimed in claim 1, wherein said mobile computer includes:

an operation result information inputting device configured to input operation result information; and

an operation result information informing device configured to inform the central control apparatus of the operation result information.

15        12. The supervising system as claimed in claim 1, wherein said mobile computer includes:

a next user inquiry request information inputting device configured to input next user inquiry request information related to an inquiry of a next user to visit; and

20        a next user inquiry request information informing device configured to inform said central control apparatus of the next user inquiry request information.

13. The supervising system as claimed in claim 12, wherein said central control apparatus includes:

an action schedule information storing device configured to store information related to an action schedule of each service person;

25        an action schedule information reading device configured to read prescribed action schedule information from the action schedule information storing device when receiving the next user inquiry request information from the mobile computer; and

an action schedule information transmitting device configured to transmit the prescribed action schedule information corresponding to the next user inquiry request information to the mobile computer.

14. The supervising system, comprising:

5 a central control apparatus having a display, and a problem information storing device;

a public communication network connected to said central control apparatus;

a communication adaptor connected to said public communication network;

10 a plurality of image forming apparatus connected to said communication adaptor via one of a wired interface and a wireless interface;

a problem informing device configured to inform the central control apparatus when a problem has occurred in a respective image forming apparatus by automatically calling the central control apparatus;

15 a reset determination device configured to determine if the respective image forming apparatus having the problem can be automatically reset when receiving the informed problem from the respective image forming apparatus;

a reset instruction transmitting device configured to transmit a reset instruction from the central control apparatus to the respective image forming apparatus having the problem if the determination of the reset determination device is positive;

20 a resetting device configured to reset the respective image forming apparatus having the problem when receiving the reset instruction from the central control apparatus;

a reset completion determining device configured to determine if a reset operation is completed by the respective image forming apparatus having the problem; and

25 a problem information erasing device configured to automatically erase respective problem information stored in the problem information storing device, if the determination of the reset completion determining device is positive.

15. The supervising system as claimed in claim 14, further comprising a problem information erasing device controller configured to control the problem information erasing

device to selectively operate. if the determination of the reset completion determining device is positive.

5 16. The supervising system as claimed in claim 15, wherein said problem information erasing device controller controls the problem information erasing device to erase the respective problem information from the display and store the respective problem information in the problem information storing device as problem history information for the respective image forming apparatus.

10 17. The supervising system as claimed in claim 14, wherein said central control apparatus displays on the display or prints out a message requesting that the respective image forming apparatus needs to be repaired by a service person immediately, if receiving problem information from the respective image forming apparatus after a prescribed number of times the reset instruction has been transmitted to the respective image forming apparatus.

15 18. A method of supervising a plurality of image forming apparatus connected to a central control apparatus via a public communication network, comprising the steps of: selectively connecting, either directly or indirectly, a mobile computer to a communication adaptor connected to the public communication network for executing communications of information between the central control apparatus and the mobile computer.

20 19. The method as claimed in claim 18, further comprising the step of locating the central control apparatus at a service center.

20. The method as claimed in claim 18, further comprising the step of dispatching a service person to a user of a selected one of the plurality of image forming apparatus.

25 21. The method as claimed in claim 18, further comprising the steps of: inputting operation status information related to an operation status of the service person into the mobile computer; and

informing the operation status information to the central control apparatus.

22. The method as claimed in claim 21, further comprising the step of including a security code in the operation status information so as to identify the mobile computer to the central control apparatus.

5           23. The method as claimed in claim 18, further comprising the steps of:  
          inputting operation history request information of a respective one of the plurality of  
image forming apparatus into the mobile computer; and  
          informing the operation history request information to the central control apparatus.

          24. The method as claimed in claim 23, further comprising the steps of:  
10       storing in the central control apparatus operation information related to an operation  
executed by the service person for each of the plurality of image forming apparatus when the  
operation information is received;  
          reading, by the central control apparatus, prescribed operation history information  
from the stored operation information when a request for the operation history information is  
15       received from the mobile computer; and  
          transmitting the prescribed operation history information to the mobile computer.

25. The method as claimed in claim 18, further comprising the steps of:  
          inputting service manual request information into the mobile computer; and  
          informing the service manual request information to the central control apparatus.

20           26. The method as claimed in claim 25, further comprising the steps of:  
          storing in the central control apparatus service manual information for each of the  
plurality of image forming apparatus;  
          reading, by the central control apparatus, prescribed service manual information when  
a request for the prescribed service manual information is received from the mobile computer;  
25       and

transmitting, by the central control apparatus, the prescribed service manual information to the mobile computer.

27. The method as claimed in claim 26, further comprising the steps of:  
designating a prescribed image forming apparatus, which is to receive and print the  
5 prescribed service manual information; and  
transmitting, by the central control apparatus, the prescribed service manual information to the prescribed image forming apparatus.

28. The method as claimed in claim 18, further comprising the steps of:  
inputting operation result information into the mobile computer; and  
10 informing the central control apparatus of the operation result information.

29. The method as claimed in claim 18, further comprising the steps of:  
inputting into the mobile computer next user inquiry request information related to an  
inquiry of a next user to visit; and  
informing the central control apparatus of the next user inquiry request information.

15 30. The method as claimed in claim 29, further comprising the steps of:  
storing in the central control apparatus schedule information related to a schedule of each service person;  
reading, by the central control apparatus, prescribed schedule information when the  
next user inquiry request information is received from the mobile computer; and  
20 transmitting, by the central control apparatus, the prescribed schedule information corresponding to the next user inquiry request information to the mobile computer.

31. A method of supervising a plurality of image forming apparatus connected to a central control apparatus, which includes a display and a problem information storing device, via a public communication network, comprising the steps of:  
25 informing the central control apparatus when a problem has occurred in a respective image forming apparatus by automatically calling the central control apparatus;

determining if the respective image forming apparatus having the problem can be automatically reset when receiving the informed problem from the respective image forming apparatus;

5 transmitting a reset instruction from the central control apparatus to the respective image forming apparatus if the determination of the determining step is positive;

resetting the respective image forming apparatus when receiving the reset instruction from the central control apparatus;

determining if a reset operation is completed by the respective image forming apparatus having the problem; and

10 automatically erasing respective problem information stored in the problem information storing device, if the determination of the reset determining step is positive.

32. The method as claimed in claim 31, wherein the automatically erasing step is controlled to selectively operate, if the determination of the reset determining step is positive.

15 33. The method as claimed in claim 31, wherein the automatically erasing step erases the respective problem information from the display and stores the respective problem information in the problem information storing device as problem history for the respective image forming apparatus.

20 34. The method as claimed in claim 31, further comprising the step of displaying on the display a message requesting that the respective image forming apparatus needs to be repaired by a service person immediately, if receiving problem information from the respective image forming apparatus after a prescribed number of times of the reset instruction has been transmitted to the respective image forming apparatus.

25 35. The method as claimed in claim 31, further comprising the step of printing a message requesting that the respective image forming apparatus needs to be repaired by a service person immediately, if receiving problem information from the respective image forming apparatus after a prescribed number of times of the reset instruction has been transmitted to the respective image forming apparatus.

36. A system for supervising a plurality of image forming apparatus connected to a central control apparatus via a public communication network, comprising:

5 means for selectively connecting, either directly or indirectly, a mobile computer to a communication adaptor connected to the public communication network for executing communications of information between the central control apparatus and the mobile computer.

37. The system as claimed in claim 36, further comprising means for dispatching a service person to a user of a selected one of the plurality of image forming apparatus.

10 38. The system as claimed in claim 36, further comprising:

means for inputting operation status information related to an operation status of the service person into the mobile computer; and

means for informing the operation status information to the central control apparatus.

15 39. The system as claimed in claim 38, further comprising means for including a security code in the operation status information so as to identify the mobile computer to the central control apparatus.

40. The system as claimed in claim 36, further comprising:

means for inputting operation history request information of a respective one of the plurality of image forming apparatus into the mobile computer; and

20 means for informing the operation history request information to the central control apparatus.

41. The system as claimed in claim 40, further comprising:

25 means for storing in the central control apparatus operation information related to an operation executed by the service person for each of the plurality of image forming apparatus when the operation information is received;

means for reading, by the central control apparatus, prescribed operation history information from the stored operation information when a request for the operation history information is received from the mobile computer; and

5 means for transmitting the prescribed operation history information to the mobile computer.

42. The system as claimed in claim 36, further comprising:

means for inputting service manual request information into the mobile computer; and

means for informing the service manual request information to the central control apparatus.

10 43. The system as claimed in claim 42, further comprising:

means for storing in the central control apparatus service manual information for each of the plurality of image forming apparatus;

15 means for reading, by the central control apparatus, prescribed service manual information when a request for the prescribed service manual information is received from the mobile computer; and

means for transmitting, by the central control apparatus, the prescribed service manual information to the mobile computer.

44. The system as claimed in claim 43, further comprising:

20 means for designating a prescribed image forming apparatus, which is to receive and print the prescribed service manual information; and

means for transmitting, by the central control apparatus, the prescribed service manual information to the prescribed image forming apparatus.

45. The system as claimed in claim 36, further comprising:

25 means for inputting operation result information into the mobile computer; and

means for informing the central control apparatus of the operation result information.

46. The system as claimed in claim 36, further comprising:

means for inputting into the mobile computer next user inquiry request information related to an inquiry of a next user to visit; and

means for informing the central control apparatus of the next user inquiry request information.

5           47. The system as claimed in claim 46, further comprising:

means for storing in the central control apparatus schedule information related to a schedule of each service person;

means for reading, by the central control apparatus, prescribed schedule information when the next user inquiry request information is received from the mobile computer; and

10           means for transmitting, by the central control apparatus, the prescribed schedule information corresponding to the next user inquiry request information to the mobile computer.

15           48. A system of supervising a plurality of image forming apparatus connected to a central control apparatus, which includes a display and a problem information storing device, via a public communication network, comprising:

means for informing the central control apparatus when a problem has occurred in a respective image forming apparatus by automatically calling the central control apparatus;

20           means for determining if the respective image forming apparatus having the problem can be automatically reset when receiving the informed problem from the respective image forming apparatus;

means for transmitting a reset instruction from the central control apparatus to the respective image forming apparatus if the determination of the determining means is positive;

means for resetting the respective image forming apparatus when receiving the reset instruction from the central control apparatus;

25           means for determining if a reset operation is completed by the respective image forming apparatus having the problem; and

means for automatically erasing respective problem information stored in the problem information storing device, if the determination of the reset determining means is positive.

49. The system as claimed in claim 48, wherein the automatically erasing means is controlled to selectively operate, if the determination of the reset determining step is positive.

50. The system as claimed in claim 48, wherein the automatically erasing means erases the respective problem information from the display and stores the respective problem information in the problem information storing device as problem history for the respective image forming apparatus.

51. The system as claimed in claim 48, further comprising means for displaying on the display a message requesting that the respective image forming apparatus needs to be repaired by a service person immediately, if receiving problem information from the respective image forming apparatus after a prescribed number of times of the reset instruction has been transmitted to the respective image forming apparatus.

52. The system as claimed in claim 48, further comprising means for printing a message requesting that the respective image forming apparatus needs to be repaired by a service person immediately, if receiving problem information from the respective image forming apparatus after a prescribed number of times of the reset instruction has been transmitted to the respective image forming apparatus.

## ABSTRACT OF THE DISCLOSURE

### A Supervising System for Image Forming Apparatus

5 A supervising system for image forming apparatus includes a central control apparatus, a public communication network connected to the central control apparatus, a communication adaptor connected to the public communication network, and a plurality of image forming apparatus connected to the communication adaptor via a wired or a wireless interface. The supervising system further includes a mobile computer selectively connected to the wired or wireless interface directly or indirectly for executing communications of information between the central control apparatus and itself via the public communication network. Also included is a method of supervising the plurality of image forming apparatus connected to the central control apparatus via the public communication network, including the steps of selectively connecting, either directly or indirectly, a mobile computer to a communication adaptor connected to the public communication network for executing communications of information between the central control apparatus and the mobile computer.

10

15

Fig. 1

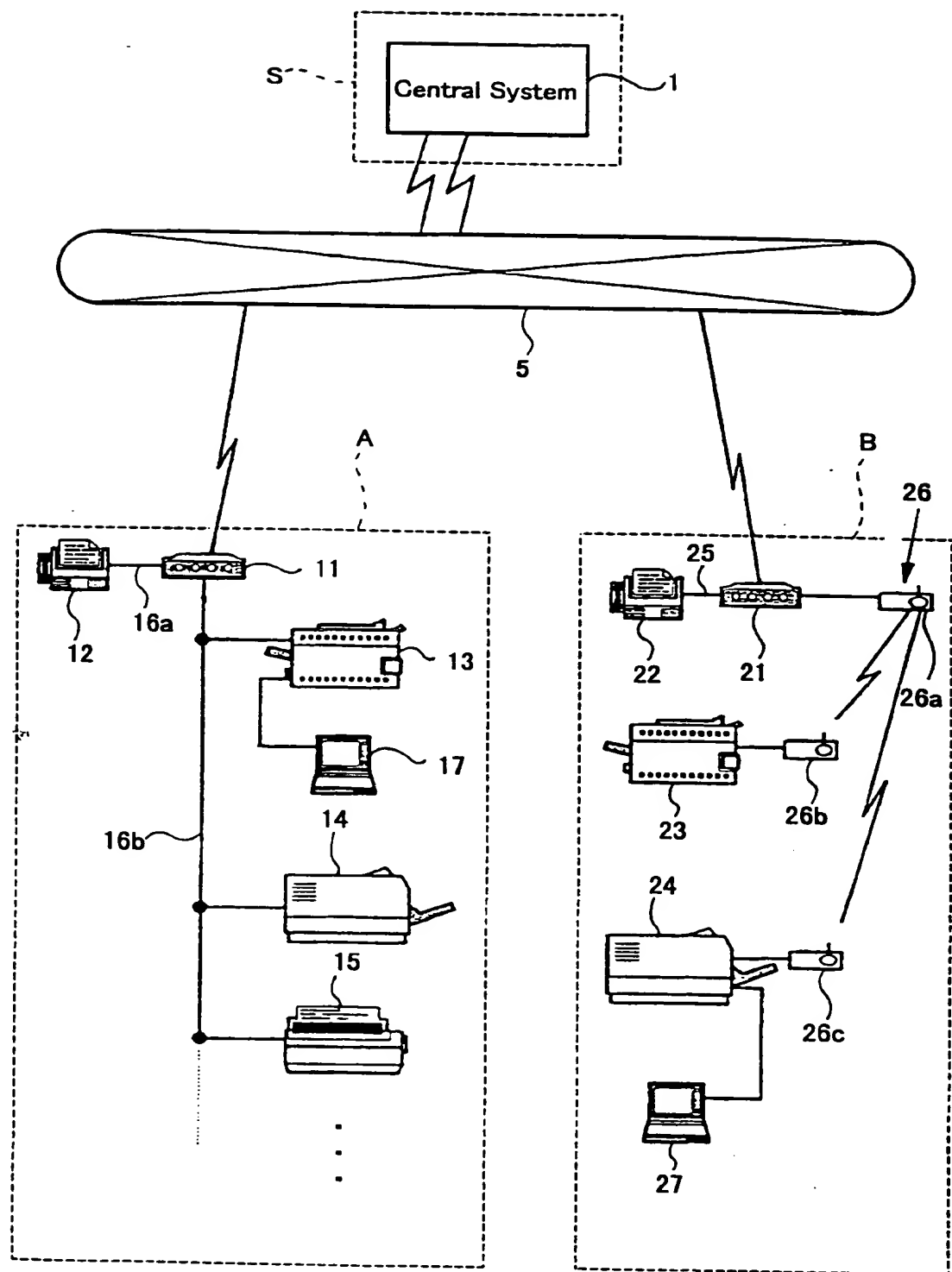


Fig. 2

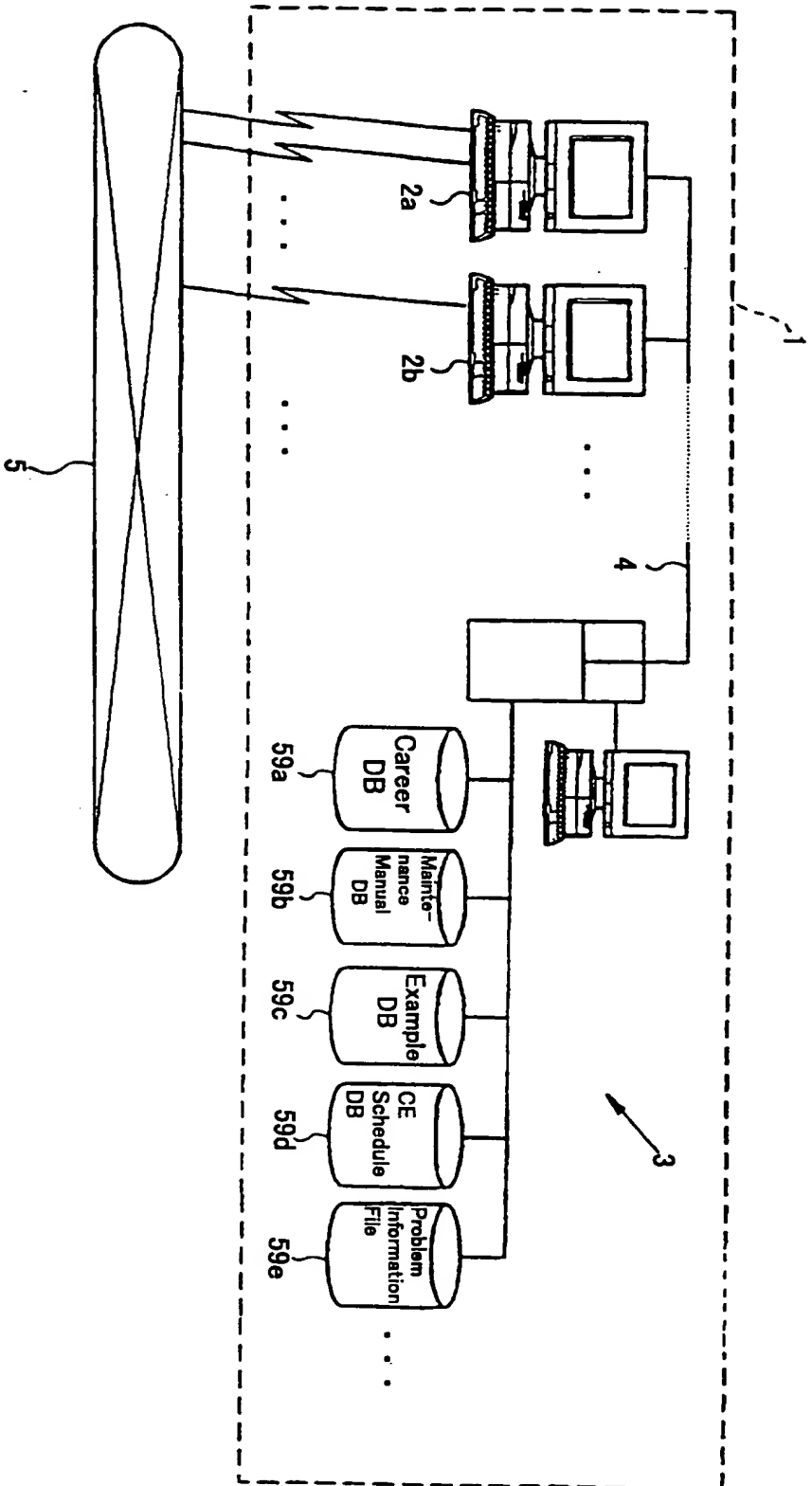


Fig. 3

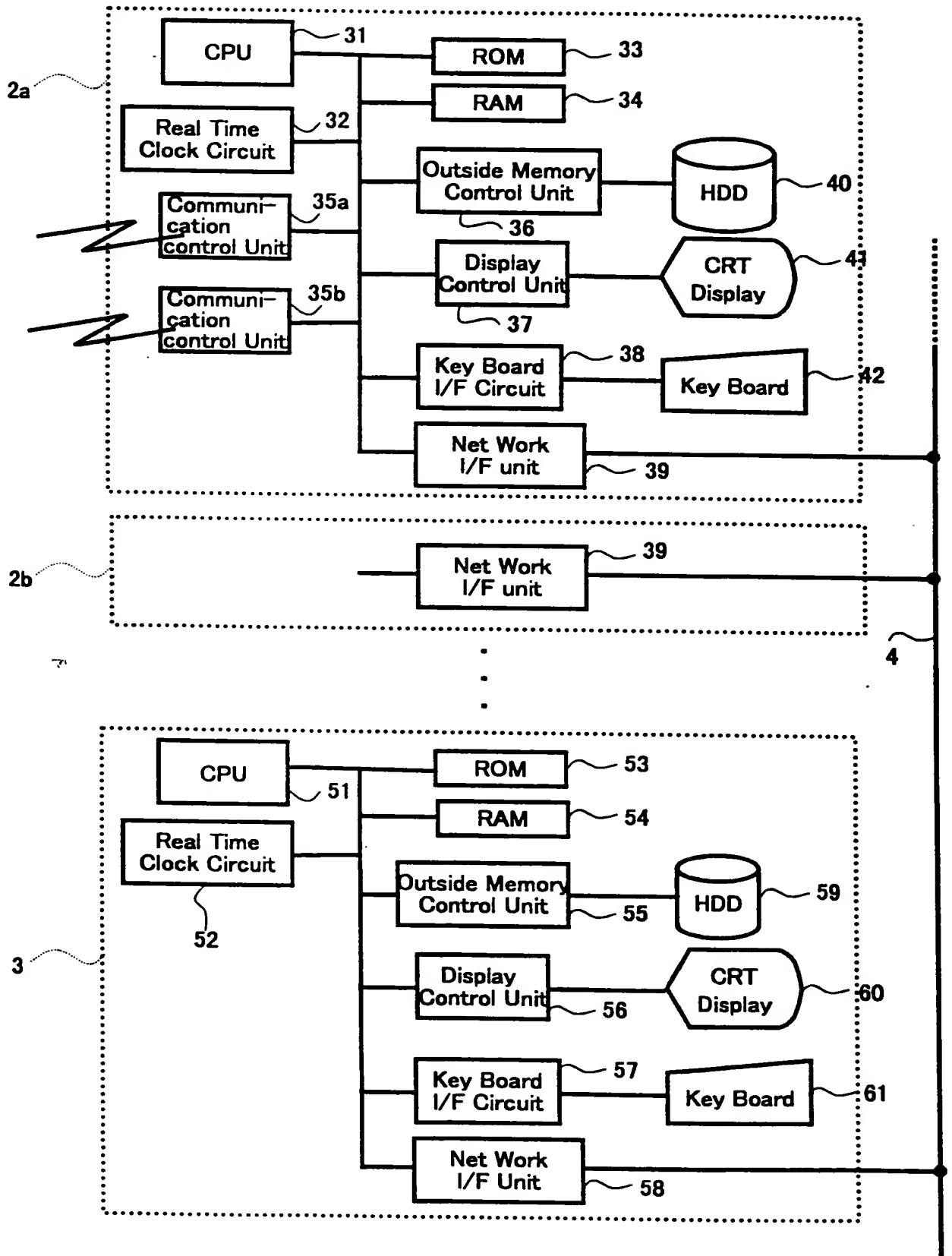
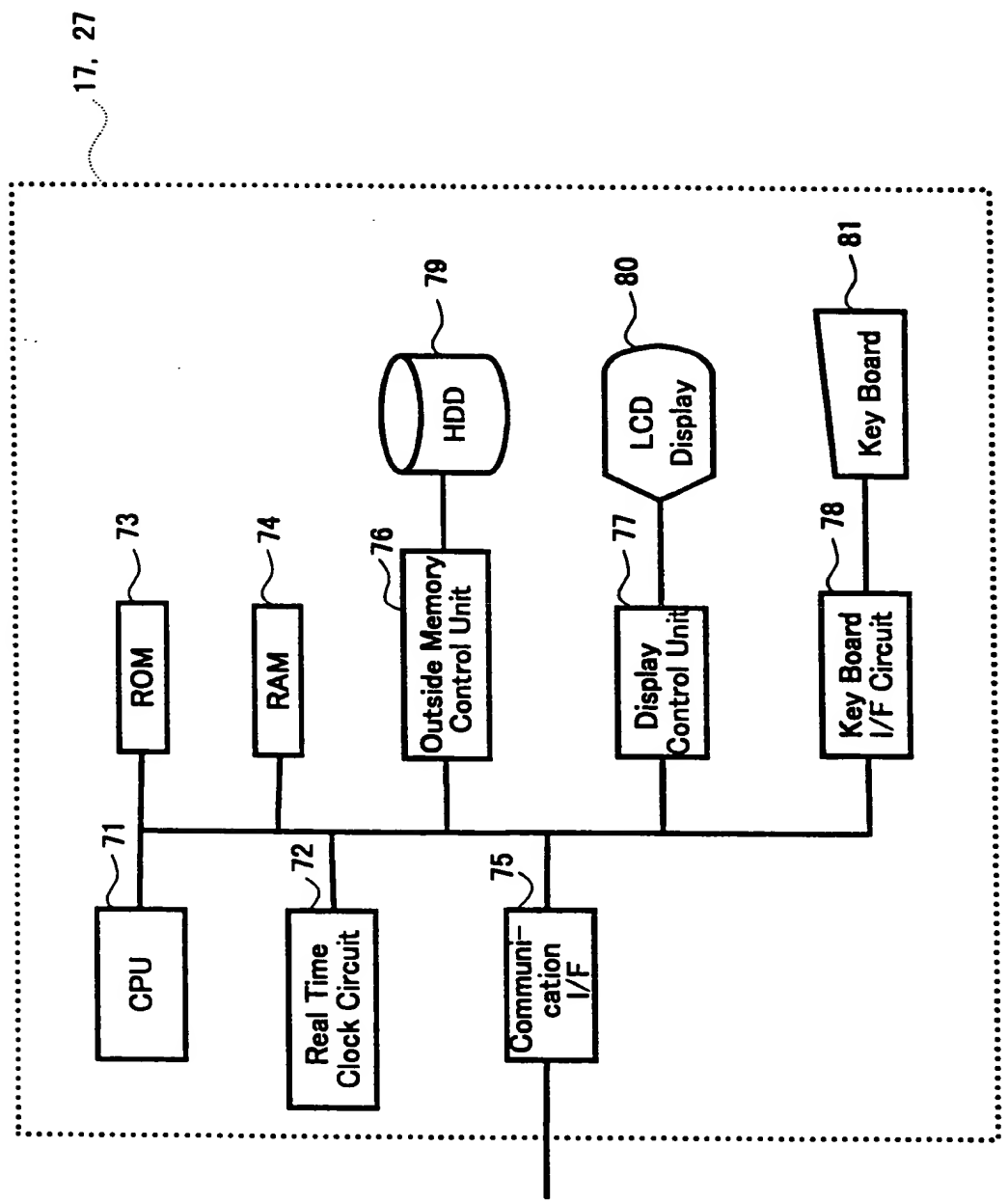


Fig. 4



**Fig. 5**

SEQ No.	User Name	Model Name	Call- Classifi- cation	Data- Arrival- Time	Elapsed- Time (Minute)	CE- delivering Status	. . .
0005		FT-7000	SC301	09 : 10	5	Arrival	
0006	SSS Business Concern	MF-250F	SC100	09 : 10	20	Operation Start	
0007	TTT Store	FT-5500	SC102	09 : 11	15	-	
. . . .							

Fig. 6

SEQ No.	User ID	Model Name/ Model Number	Call- Classifi- cation	Data- Arrival- Time	Elapsed- Time (Minute)	CE- Delivering- Status	. . .
0005	XX...03	XXXXX	301	09 : 10	5	01	
0006	XX...19	XXXXX	100	09 : 10	20	02	
0007	XX...50	XXXXX	102	09 : 11	15	00	
.							
.							
.							

Fig. 7

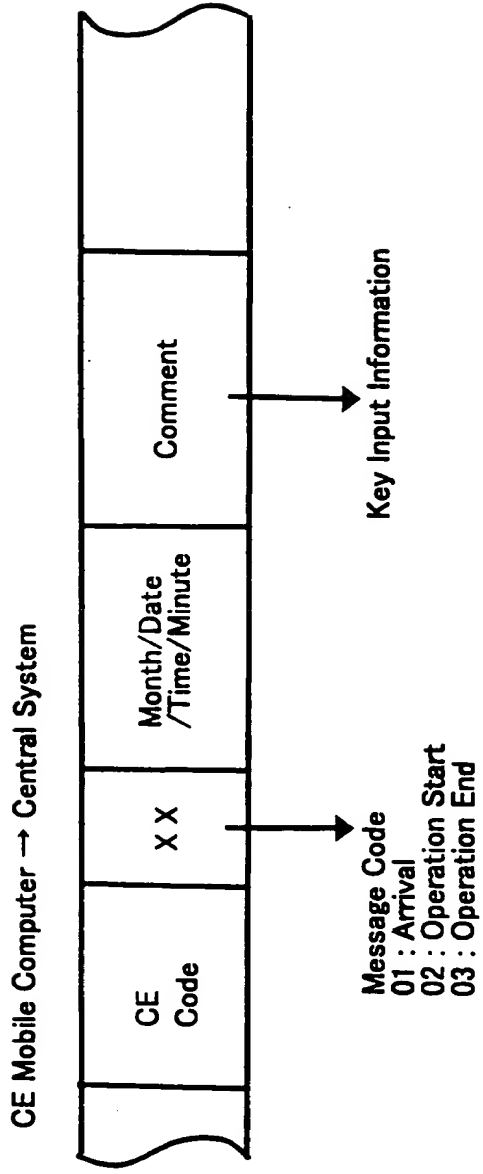
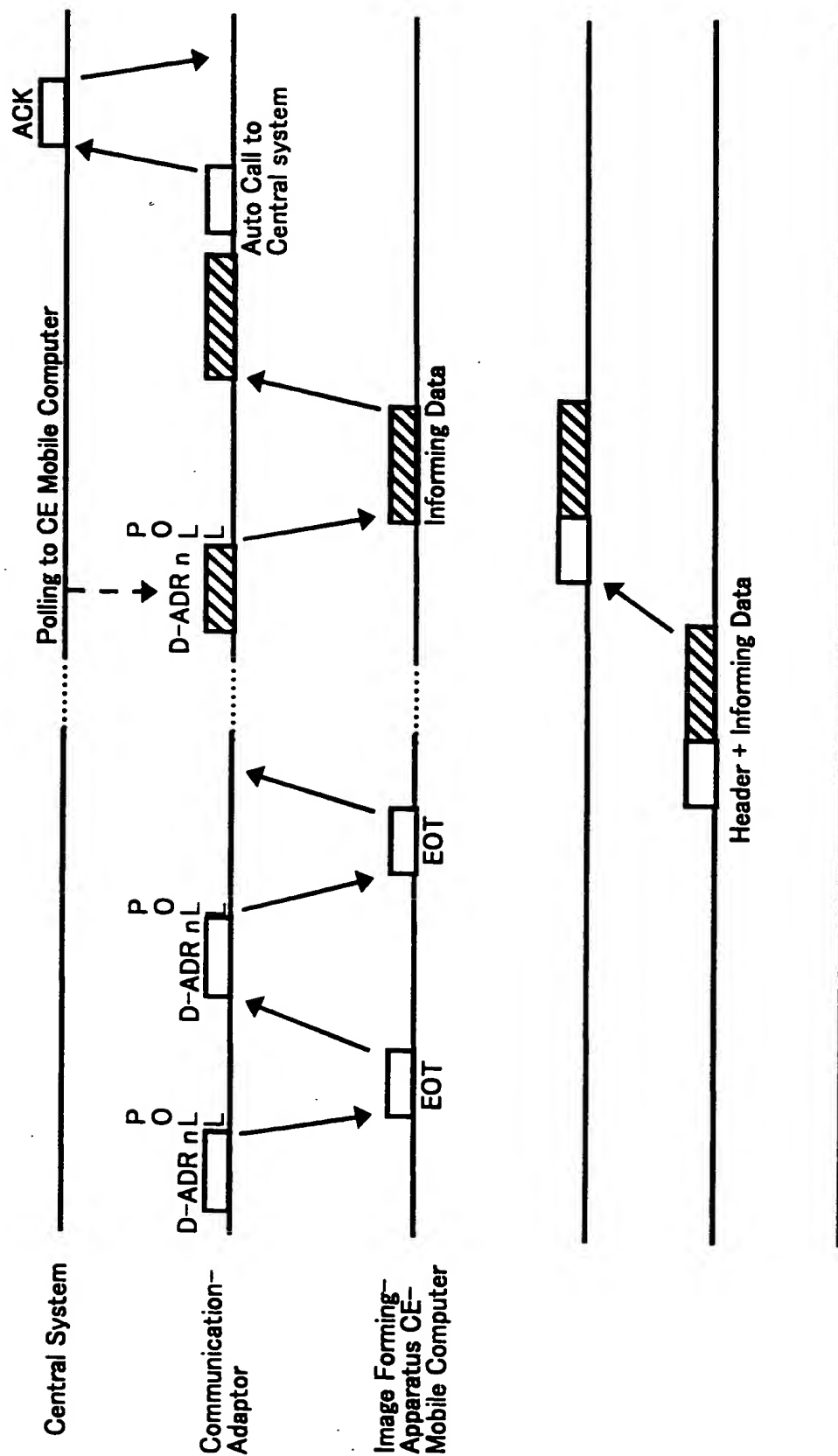
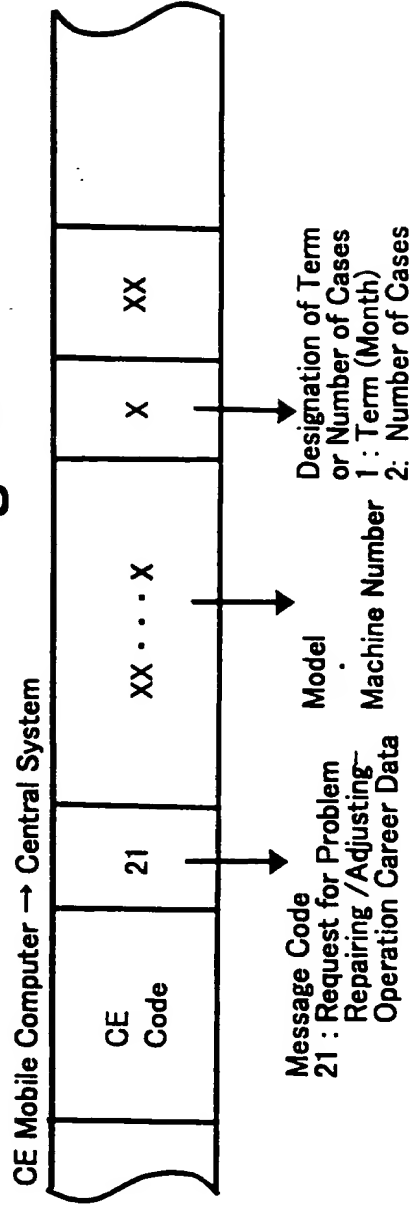


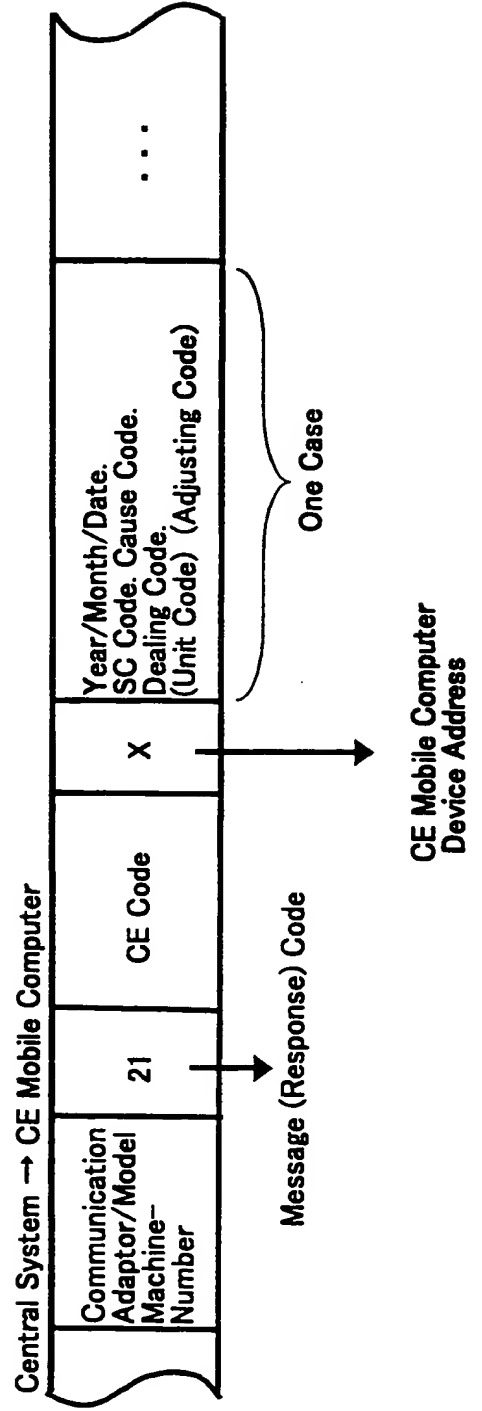
Fig. 8



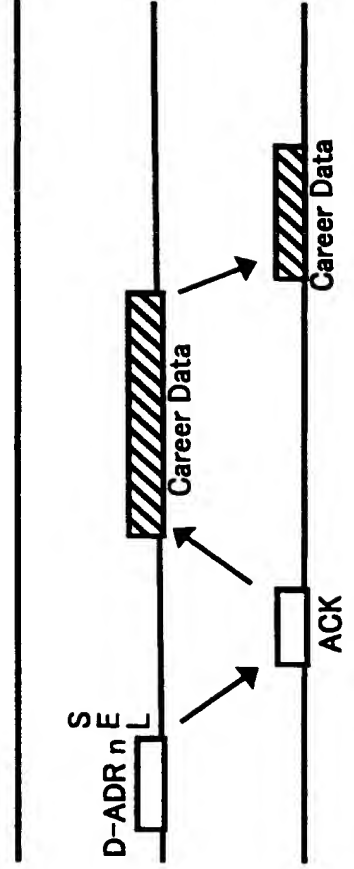
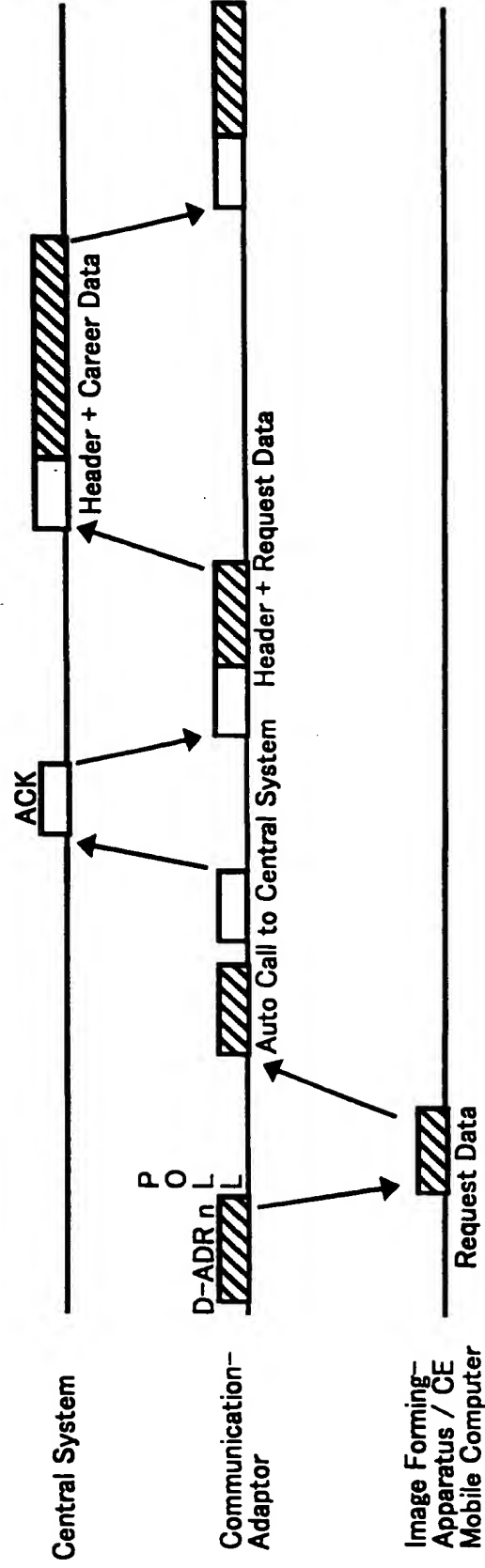
# Fig. 9A



# Fig. 9B



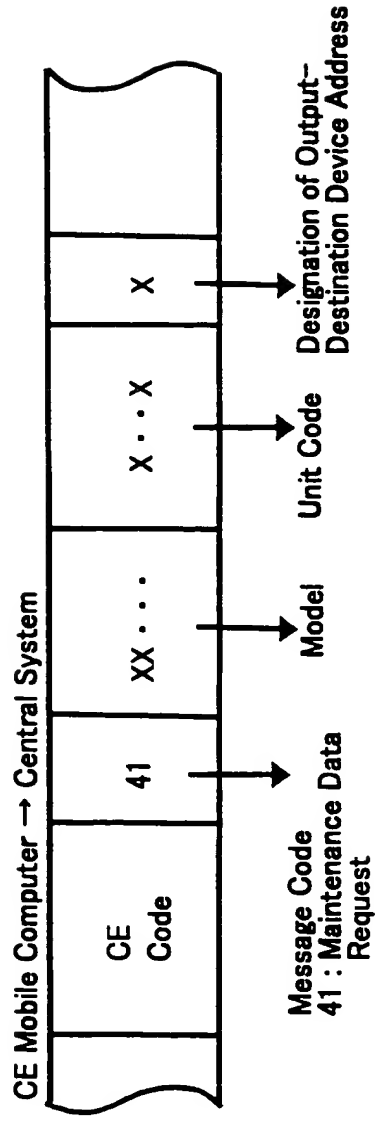
# Fig. 10



**Fig. 11**

No.	Position Code	Name
1	XX.....11	Fixing
2	XX.....12	Side Feeding Path
3	XX.....13	First Feeding Unit
⋮		

# Fig. 12A



# Fig. 12B

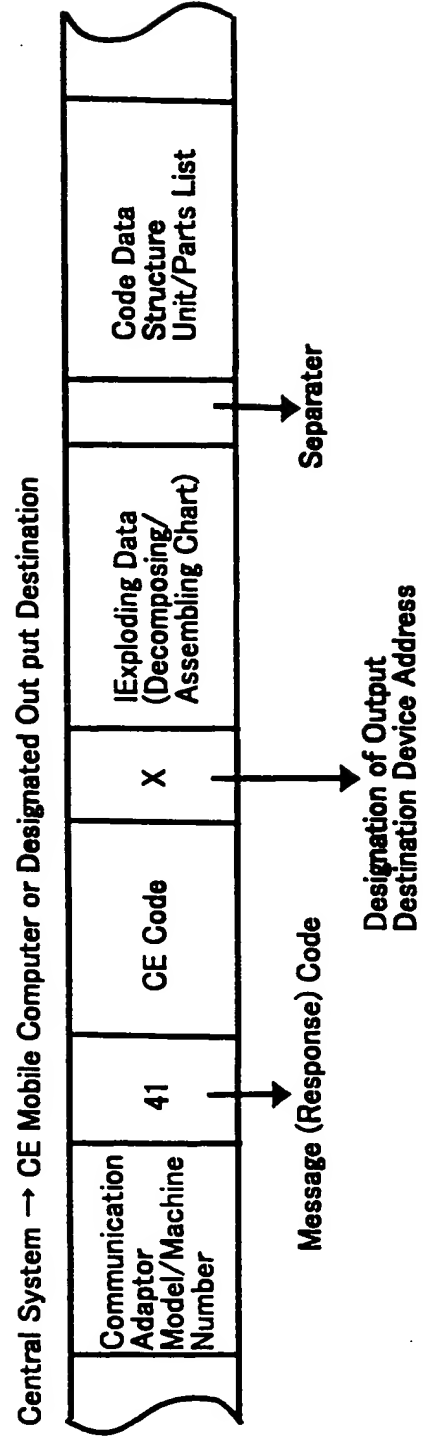
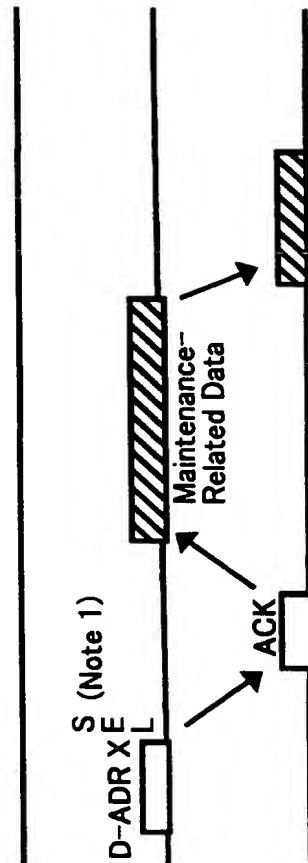
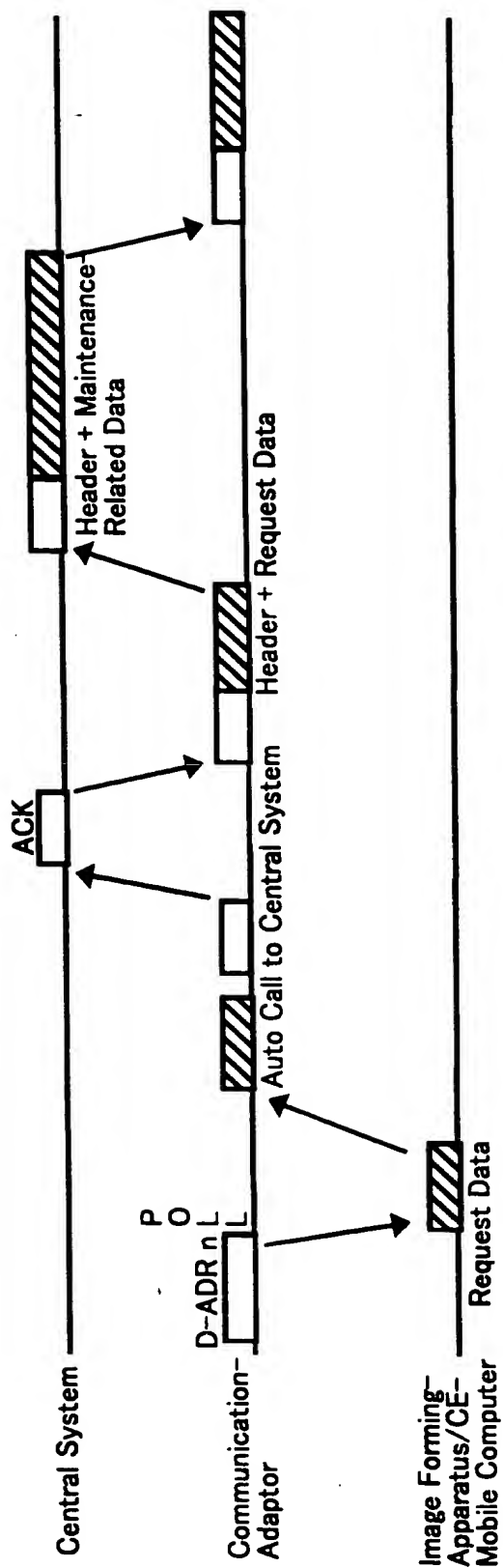


Fig. 13



**Fig. 14**

Drawing Number	Parts Number	Name
.		
.		
.		
20	XX.....X0	Guide Pick up
21	XX.....X1	Arm Pick up Assembling
22	XX.....X2	Stopper Feed Assembling
23	XX.....X3	Shaft Feed
24	XX.....X4	Guide Feed Up Stair
.	.	.
.	.	.
.	.	.
.....		

**Fig. 15**

SC No.	SC Item
.	
.	
.	
101	Illumination System Error
102	Home Position Error
103	XX Sensor Abnormal
.	
.	
.	

**Fig. 16**

Cause Code	Contents
.	
.	
.	
211	Stain
212	Unit Parts Damage
213	Screw looseness
.	
.	
.	

**Fig. 17**

Code No.	Repairing Contents
002	Cleaning
003	Unit·Parts Exchange
.	
.	
.	
201	Voltage Amount Adjusting

Fig. 18

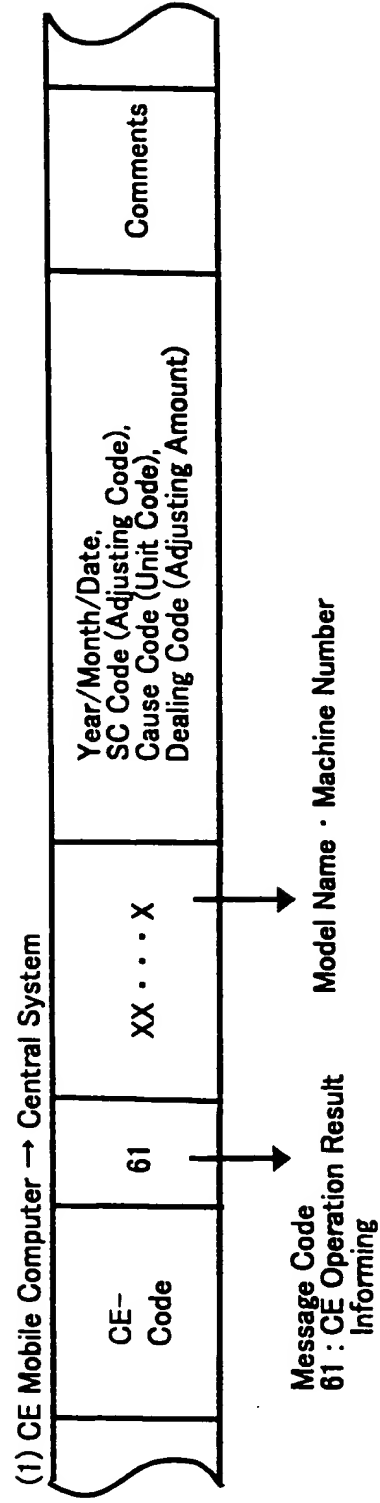
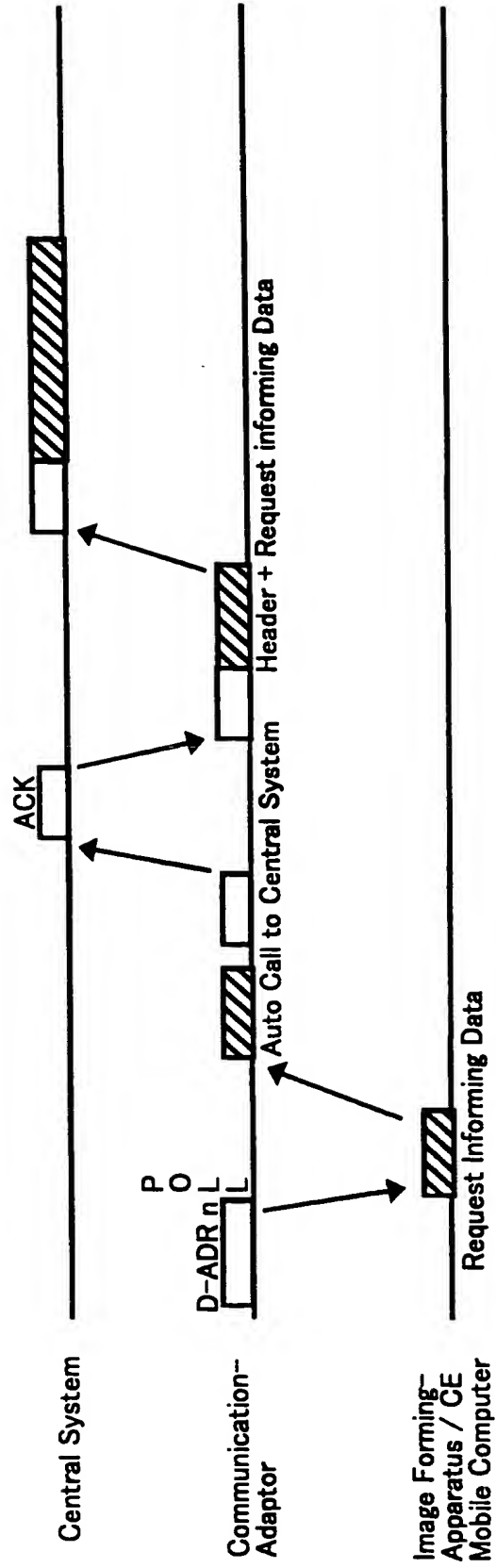
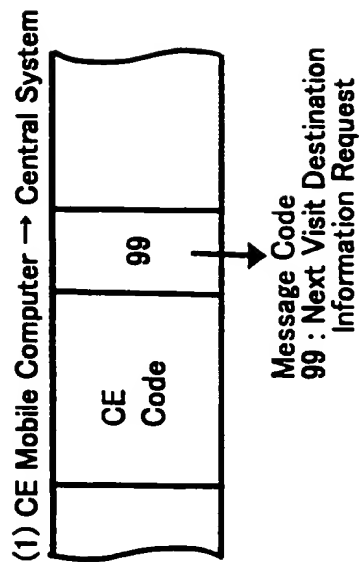


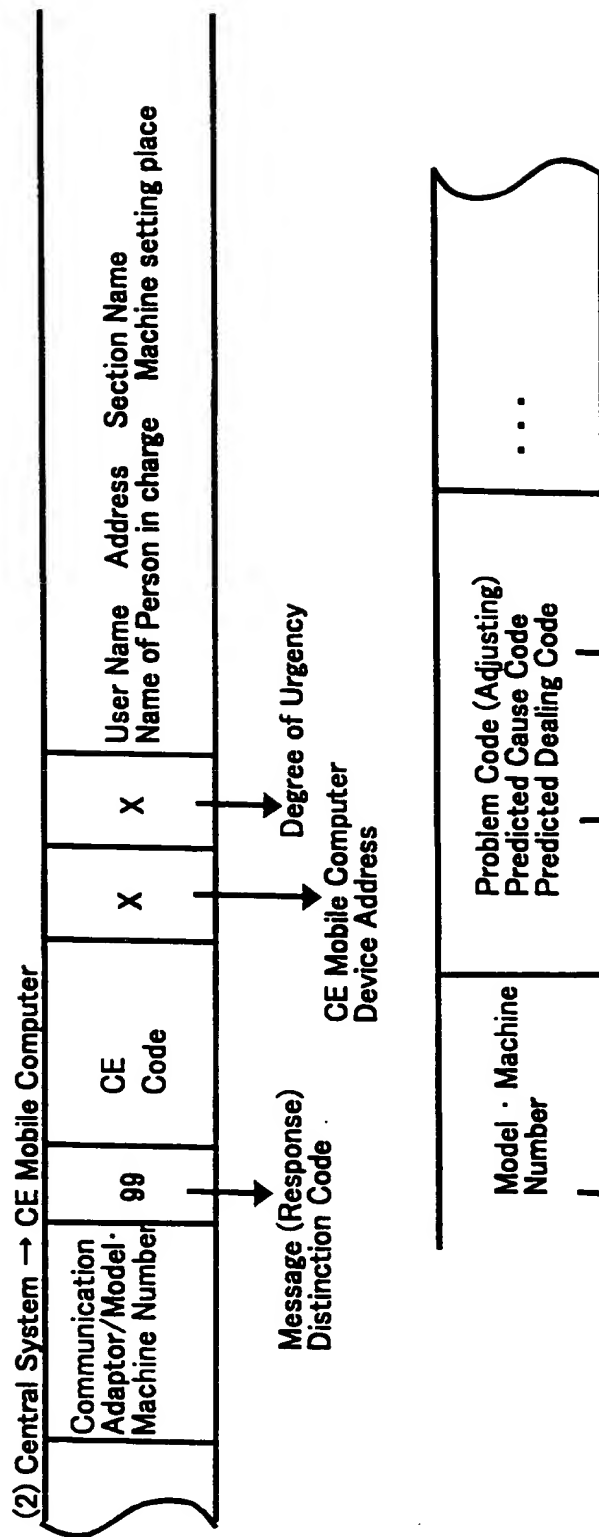
Fig. 19



# Fig. 20A



# Fig. 20B



# Fig. 21

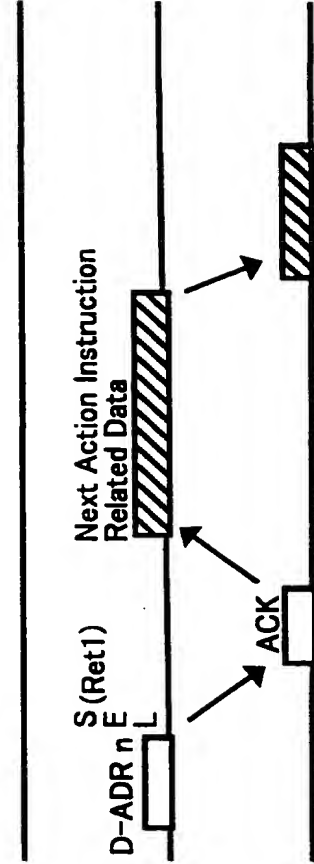
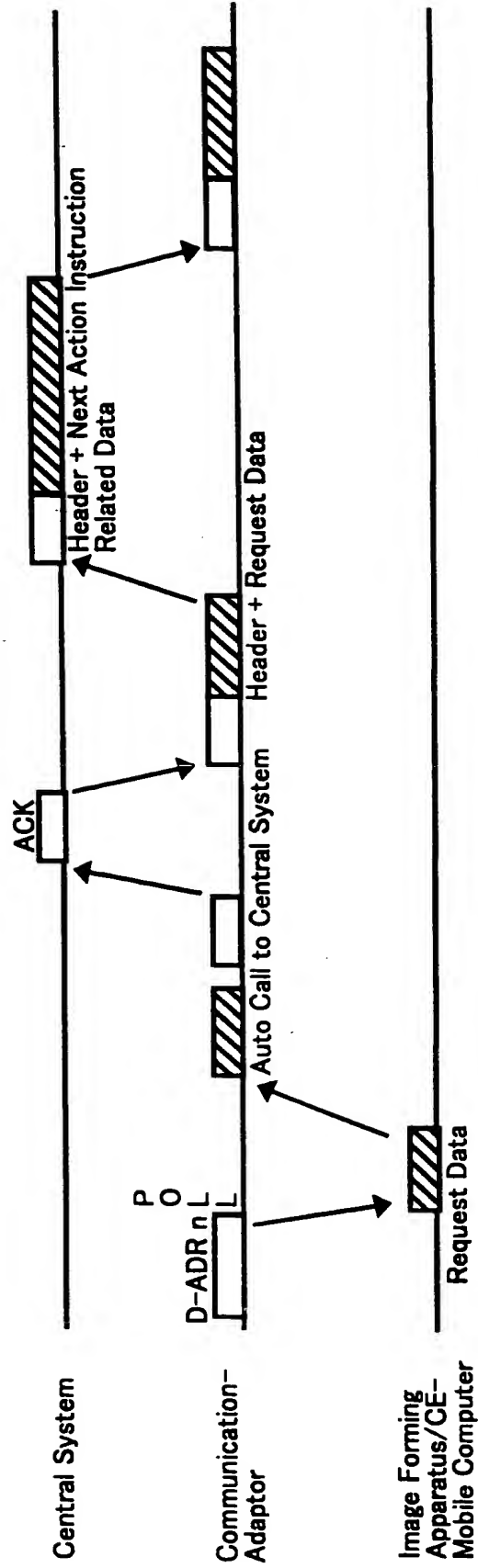


Fig. 22

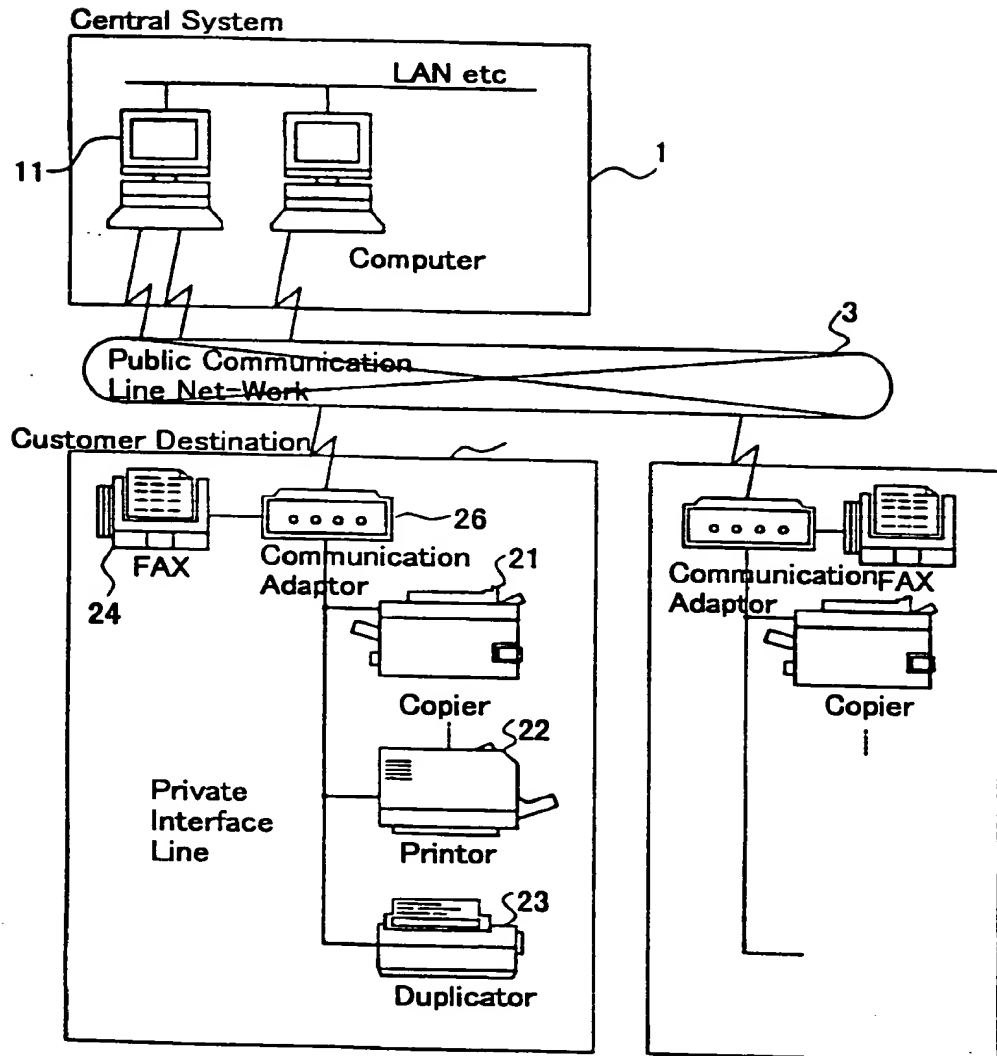
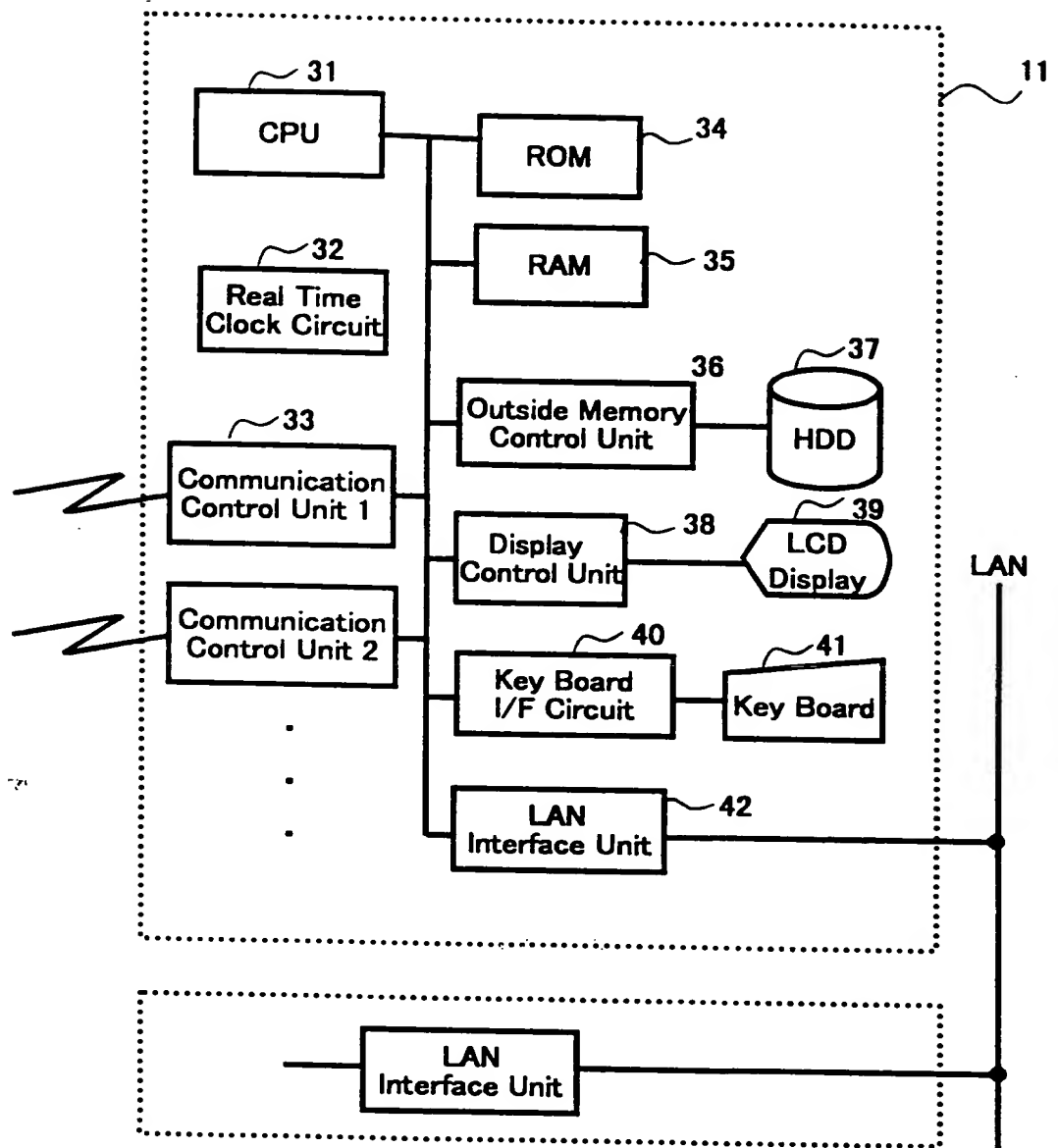


Fig. 23

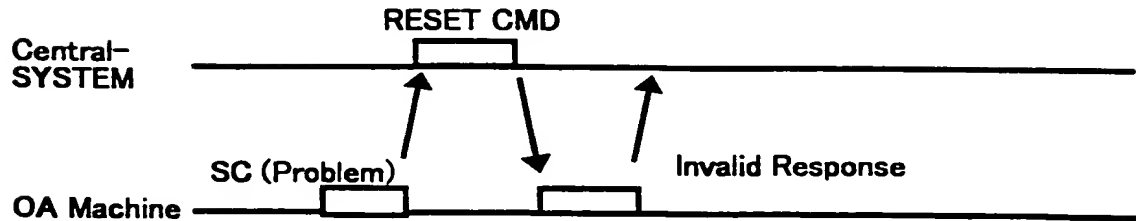


**Fig. 24**

SC Number Table	
	108
	115
≈	.
	.
	.
	511

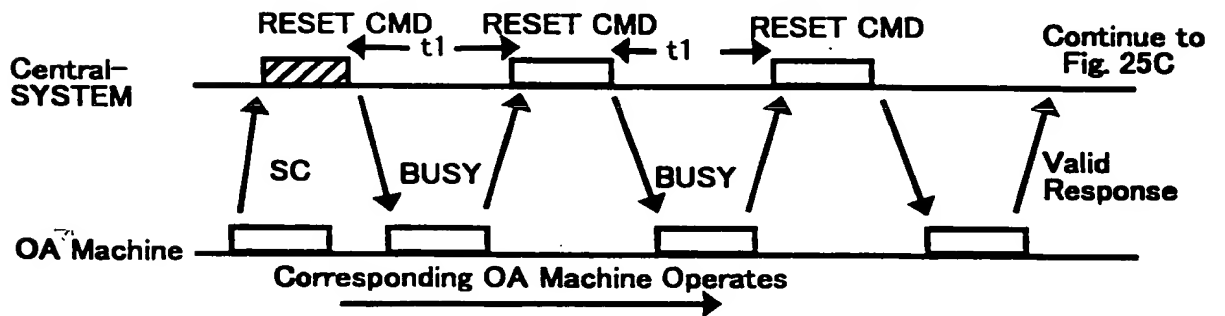
# Fig. 25A

When SC is recovered & Corresponding OA Machine does not Operate



# Fig. 25B

When SC is going & Corresponding OA Machine Operates



# Fig. 25C

When SC is going & Corresponding OA Machine does not Operate

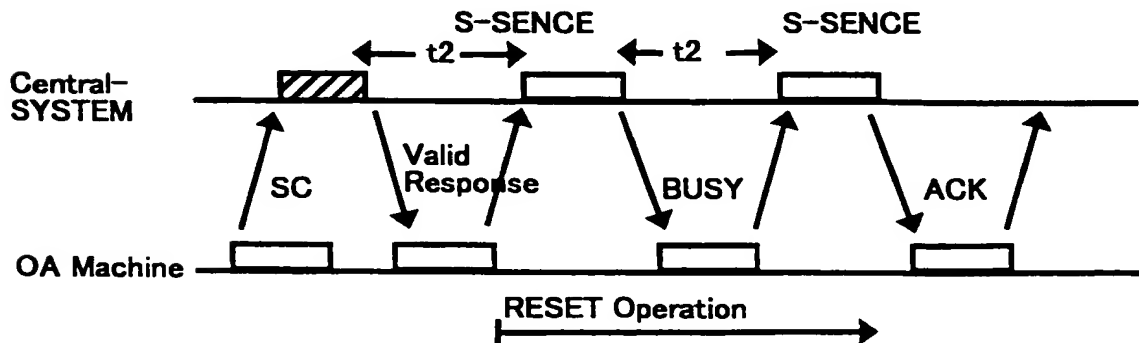


Fig. 26

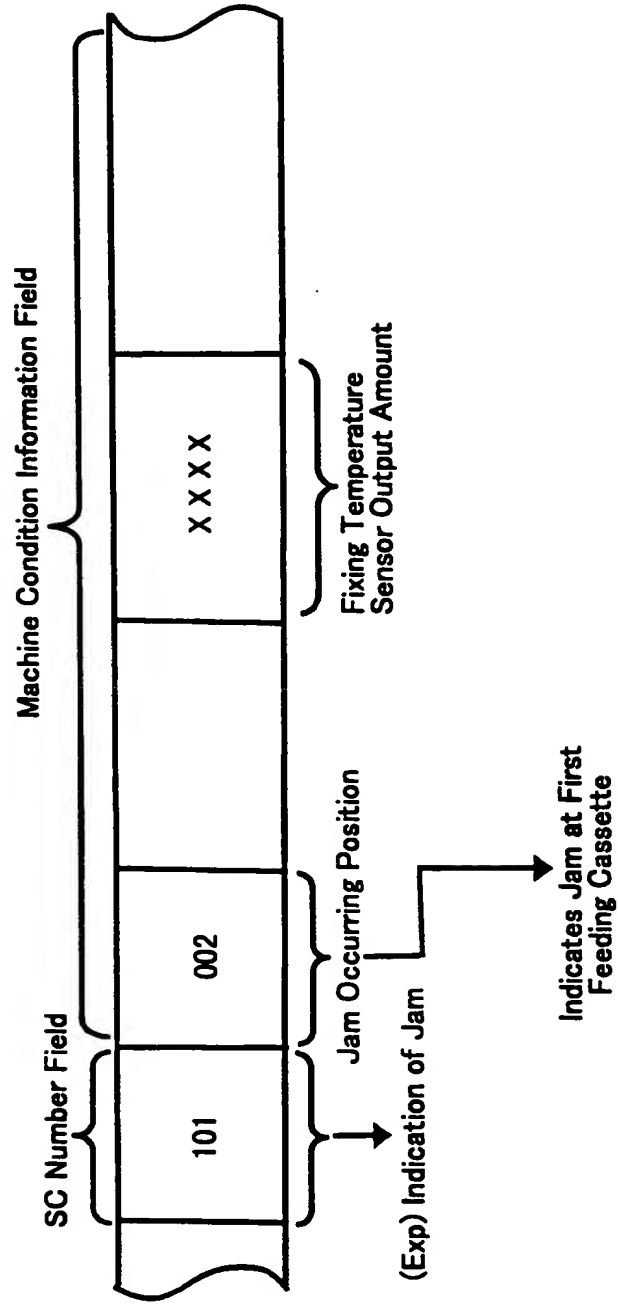
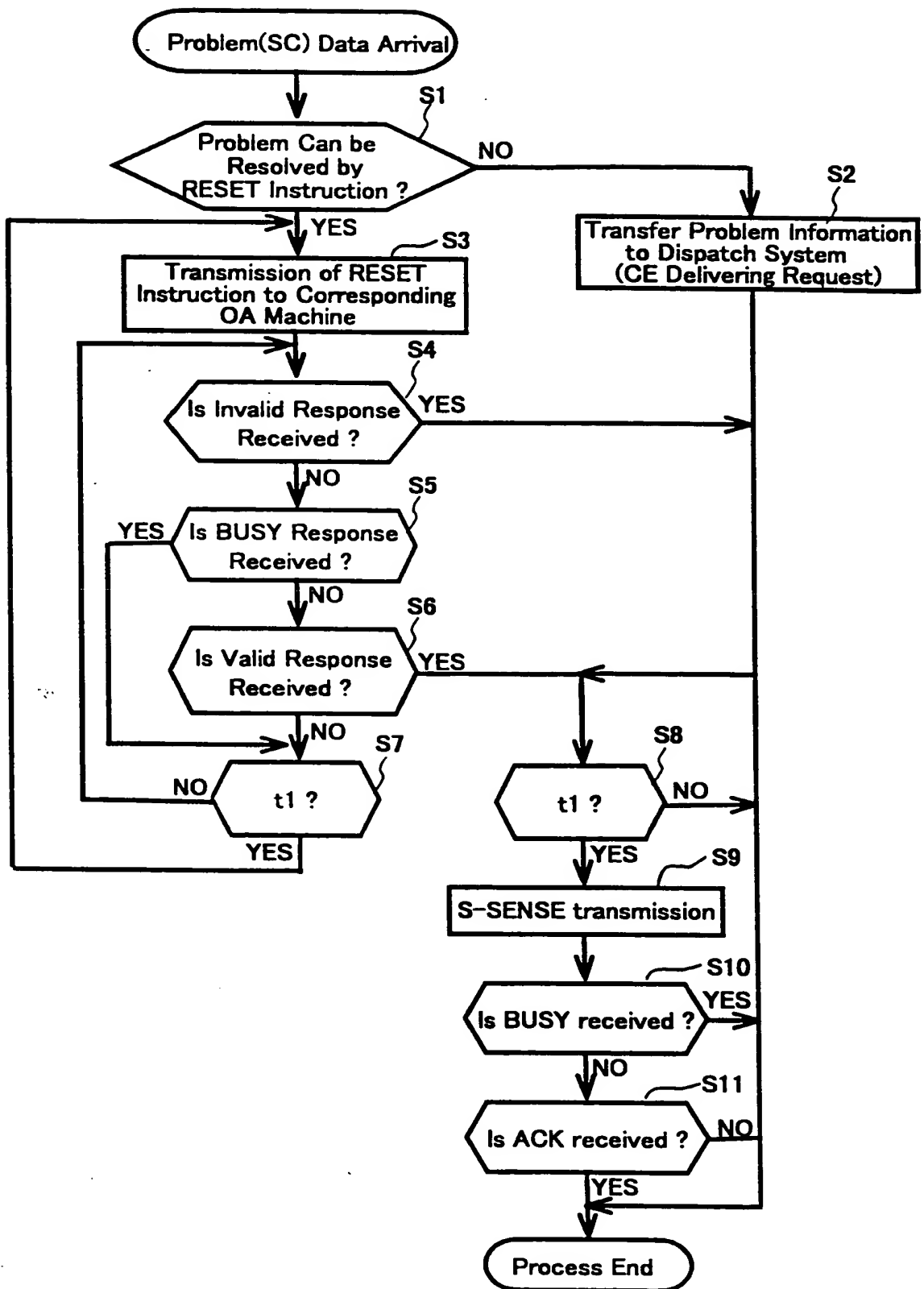


Fig. 27



# Fig. 28

SEQ No.	User ID	Model Code	Call- Classifi- cation	Data- Arrival- Time	Present- Condition- Code	. . .	Erase Flag
0005	XX...03	XXXXX	301	09 : 10	5001		1
0006	XX...19	XXXXX	100	09 : 10	5001		1
0007	XX...50	XXXXX	102	09 : 11	5001		0
.	.	.	.	.	.	.	.

**Fig. 29**

SEQ No.	User Name	Model Name	Call- Classifi- cation	Data- Arrival- Time	Present- Condition	. . .
0005	Co, Ltd., RRR	FT-7000	SC301	09 : 10	During Remote- Recovering	
0006	SSS Business Concern	MF-250F	SC100	09 : 10	During CE- Delivering	
0007	TTT Store	FT-5500	SC102	09 : 11	During Remote- Recovering	
.						
.						
.						

Fig. 30

User ID	SEQ No.	Year/ Month/ Data	Model Machine Number	Call- Classifi- -cation	Dealing- Code	Unit-Parts Code	Result- Code
...01	0001	980301	XXXXXX1000	301	002		2 - 0
	0002	980310	XXXXXX3550	100	009	XYX - 5678	1 - 0
	0003	980303	XXXXXX1000	302	009	YYX - 1234	1 - 0
	0004	980304	XXXXXX1000	301	002		2 - 0
	0005	980305	XXXXXX1000	301	002		2 - 0
	0006	980311	XXXXXX1000	303	009	XYX - 2345	2 - 0
	.	.	.	.	.	.	.

Fig. 31

